THE THIRD ANNUAL REPORT

of the

DEPARTMENT *of* ANESTHESIOLOGY

1960

THE NEW YORK HOSPITAL-CORNELL MEDICAL CENTER

525 EAST 68TH STREET, NEW YORK 21, NEW YORK

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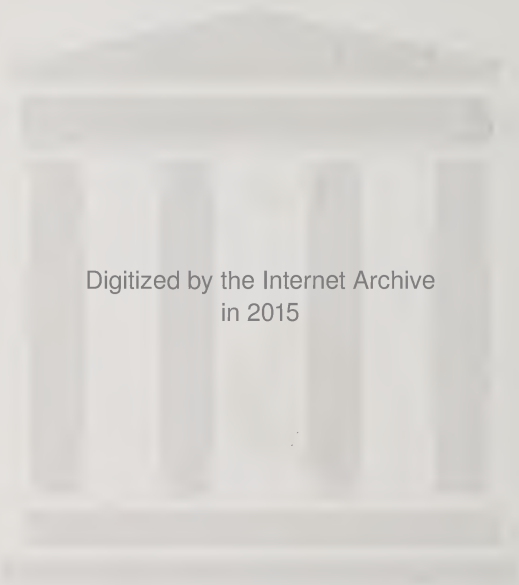

THE THIRD ANNUAL REPORT

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DEPARTMENT OF ANESTHESIOLOGY

The New York Hospital

1960

by Joseph F. Artusio, Jr., M.D.

To the President of the Board of Governors of the Society of The New York Hospital:

I am happy to present to you an historical sketch of the activities of the Department of Anesthesiology during its third year as a separate department in The New York Hospital.

1960 will be remembered as a momentous year in this department's history, for during it we saw the completion of the Anesthesiology Department Library. Although the library has been functioning for a period of only seven months, it has already made possible significant advances in all areas of the department.

The new library encompasses approximately 340 square feet of floor space on the 11th floor of the main hospital. Book shelves of cherry stained hardwoods line the room. The two large seminar tables and 15 comfortable seminar chairs, which occupy the middle of the room are collapsible, thus making space available for the placement of 35 chairs for large conferences.

We now have in the library 336 texts or bound symposia and 152 bound journals. Fifty other miscellaneous books such as directories and dictionaries make up the total of almost 500 books devoted to anesthesiology and allied fields.

I believe that this facility is the most up-to-date library in anesthesiology of any department in this country today. I am sure the number of texts and bound

journals will grow in time, and the library has sufficient space to meet the needs of this expansion for the foreseeable future.

Each resident in anesthesiology has space in the library for his own personal books, notebooks, and papers. This means that all his reference materials are readily available, thus greatly facilitating his study.

Last year we reported on our research in new fluorinated hydrocarbons and fluorinated ethers. At that time we indicated that methoxyflurane, one of the fluorinated ether compounds, made by The Dow Chemical Company, was to be given clinical trial. This drug has proven to be an excellent non-flammable anesthetic agent for man. Our results were substantated by investigation in many other teaching institutions in our country. Thus, during 1961, this compound whose anesthetic properties and clinical usefulness were first described in this institution, will receive wide clinical use throughout the world under a trade name of Penthrane, marketed by the Abbott Laboratories.

I am sure that during the sixties, the field of anesthesia will add to its armamentarium a series of new non-flammable, non-explosive anesthetic agents, so that by the end of this decade, none of our present flammable and explosive anesthetic agents will be in use. The presently available new non-flammable anesthetic agents are not ideal anesthesia agents in the strictest sense of the word. However, they will make anesthesia safe for the patient from the standpoint of fire and explosion hazard. Besides increase in patient safety, these advances are also important to hospitals in general. Untold thousands of dollars are being spent today in attempts to safeguard operating rooms against explosions during the administration of combustible anesthetic agents. If any prediction proves correct, this great amount of money will be saved, since it will not be necessary to provide such elaborate precautions in hospital construction, for flammable drugs will be outmoded.

SENIOR STAFF

My associates in the administration of this department have been:

Dr. Benjamin E. Marbury, Attending Anesthesiologist	January 1949
Dr. Valentino D. B. Mazzia, Associate Attending Anesthesiologist .	July 1952
Dr. Marjorie J. Topkins, Assistant Attending Anesthesiologist . . .	July 1952
Dr. Robert I. Schrier, Assistant Attending Anesthesiologist . . .	October 1956
Dr. Alan Van Poznak, Assistant Attending Anesthesiologist . . .	February 1958
Dr. Herbert Erlanger, Assistant Attending Anesthesiologist . . .	June 1957
Dr. Gerald J. Millstein, Assistant Attending Anesthesiologist . . .	August 1959
Dr. Francis M. Tiers, Assistant Attending Anesthesiologist	August 1959
Dr. George R. Monahan, Assistant Attending Anesthesiologist . . .	July 1960

During the year, ten attending anesthesiologsts assisted me in the administration of this department. Each year the attending staff in anesthesiology has increased. This is the largest number of attending anesthesiologsts to date, and we are indeed proud of our increasing staff of capable, well-trained physicians.

Dr. Benjamin E. Marbury continues to supervise the anesthesias given to patients from the Department of Obstetrics and Gynecology. It should be noted that this year, Dr. Marbury's efforts in the direction of fetal salvage are manifested as a co-author in a recent book, "Resuscitation of the Newborn. Principles and Practices." Dr. Marbury continues as a member of the infant mortality committee of the New York County Medical Society.

Dr. Valentino D. B. Mazzia continues to guide the clinical anesthesia and to supervise the resident training program. This year Dr. Mazzia and I began to write a book which, we hope, will effectively portray the specialty of anesthesiology for the medical student. We hope that this text will become the standard for courses in anesthesiology in the medical schools of this country. This book should be available for distribution in the winter of 1961. Dr. Mazzia continues to represent this department on the Formulary Committee and as a Member of the Anesthesia Study Committee of the New York State Medical Society.

On July 1, 1960 Dr. Manfred Alexander resigned as an assistant attending anesthesiologist to enter the private practice of anesthesia at The Pompton Plains Hospital, Pompton Plains, New Jersey. Dr. Alexander has been with this department for a period of three years, as a resident and as an attending anesthesiologist.

On July 1, 1960 Dr. George Monahan, having finished his residency training program, became an assistant attending anesthesiologist.

Dr. Marjorie Topkins, Dr. Robert I. Schrier, and Dr. Alan Van Poznak have continued in their administrative posts.

Dr. Topkins is in charge of the nurse anesthetists and is the representative on the Out-Patient and Professional Service Committee.

Dr. Robert I. Schrier is in charge of anesthetic equipment and is the representative on the Records Committee.

Dr. Alan Van Poznak is in charge of the development of our research program and is the representative on the Procedures Committee.

RESIDENT STAFF

The complete list of resident staff appointments in anesthesiology for the year 1960 follows:

First Year Resident

John J. Beirne, Jr., M.D.	July 1, 1959 -
Margaret M. Deitzler, M.D.	July 1, 1959 until Dec. 30, 1960
Richard E. Hunt, M.D.	July 1, 1958 until June 30, 1960
Mehdi Jandaghi, MD.	July 1, 1958 until June 30, 1960
Yasuo Kakehi, M.D.	July 1, 1959 -
Esmeralda Mercado, M.D.	July 1, 1958 until June 30, 1960
Robert G. Merin, M.D.	July 1, 1959 -
George R. Monahan, M.D.	July 1, 1958 until June 30, 1960
Anthony J. Puleo, M.D.	July 1, 1959 -

First Year Assistant Resident

Ann Huston, M.D.	July 1, 1960 -
Richard B. Knapp, M.D.	July 1, 1960 -
Liebert S. Turner, M.D.	July 1, 1960 -
Genevieve Wellbaum, M.D.	July 1, 1960 - Dec. 30, 1960
Peter W. T. Yu, M.D.	July 1, 1960 -

Our resident staff also has increased. During the year 1960, 14 residents functioned in this department, so that our clinical and research facilities were made available to the largest group of house officers in our history. It is interesing to note that as in previous years, 33% of the resident staff came from the Cornell University Medical College. The training program is attracting residents from all the major geographical areas of the United States and is providing well trained anesthesiologists for the country as a whole.

On July 1, 1960, Dr. Richard E. Hunt, Dr. Mehdi Jandaghi, Dr. Esmeralda Mercado, and Dr. George Monahan completed their residency training at this institution. Dr. Richard Hunt joined the United States Air Force for this two-year period of duty. Dr. Jandaghi plans to return to his native Iran to advance anesthesia there. Dr. Mercado plans to return to the Philippines to advance anesthesia in her country.

NURSE ANESTHETISTS

Dr. Marjorie J. Topkins in charge

Of the 18 available positions for staff nurse anesthetists, 15 are presently filled. The function of the nurse anesthetist in the Department of Anesthesiology continues unchanged from previous years. The nurse anesthetist provides a service function to this department, and so doing, makes possible the extensive didactic program offered to the resident anesthesiologist throughout his training period.

Our three senior nurse anesthetists offer supervision and liaison between the administration and the staff nurse anesthetist. Miss Mullin, assisted by Miss Eveleth, supervises the records and statistics section of this department directly under Dr. R. I. Schrier. Miss Kovar and Mrs. Cahill supervise the nurse anesthetists assigned to the Obstetric and Gynecology operating suite and GOR-POR operating theatres respectively.

	Employment date	Resigned
Sara Mullin, *Senior* Nurse Anesthetist	Sept., 1932	
Josephine Cahill, Senior Nurse Anesthetist	Oct., 1943	
Ethel Kovar, Senior Nurse Anesthetist	Oct., 1944	
Grayce Eveleth, Staff Nurse Anesthetist	Nov., 1935	
Catherine Litzen, Staff Nurse Antsthetist	April, 1937	
Mary Sullivan, Staff Nurse Anesthetist	May, 1948	
Frances Estabrook, Staff Nurse Anesthetist	June, 1955	April, 1960
Rosemary Pruitt, Staff Nurse Anesthetist	Jan., 1956	June, 1960
Sheila McDermott, Staff Nurse Anesthetist	Dec., 1956	
Nora Fadoul, Staff Nurse Anesthetist	June, 1957	Aug., 1960
Elizabeth Davis, Staff Nurse Anesthetist	Feb., 1958	
Maureen Maxfield, Staff Nurse Anesthetist	Feb., 1958	
Consuela Hansen, Staff Nurse Anesthetist	Nov., 1958	
Marthe Cohn, Staff Nurse Anesthetist	Jan., 1959	
Carmela Marascio, Staff Nurse Anesthetist	Jan., 1959	
Cora Kale Moore, Staff Nurse Anesthetist	May, 1959	July, 1960
Anne Marie Ryan, Staff Nurse Anesthetist	Sept., 1959	
Hildegard Rhodes, Staff Nurse Anesthetist	Jan., 1960	July, 1960
Marilyn Soderberg, Staff Nurse Anesthetist	Mar., 1960	
Martha Pang, Staff Nurse Anesthetist	Sept., 1960	
June de la Vasselais, Staff Nurse Anesthetist	Sept., 1960	
Pauline Auclair, Staff Nurse Anesthetist	Nov., 1960	Dec., 1960

FUNCTIONS OF THE DEPARTMENT OF ANESTHESIOLOGY

Clinical Service

The clinical service of this department during 1960 has proceeded smoothly. Although the number of anesthetics given during 1960 did not increase over 1959, I believe the quality of service has improved. Our statistics indicate that we are an inhalation school of anesthesia, as the vast majority of anesthesia in this institution is given via the inhalation route. However, we do an adequate number of regional anesthetics in situations where they are indicated, and a sufficient number to give our resident physicians satisfactory training in these techniques. Our clinical anesthesia is gradually being done by non-flammable techniques using multiple drugs, the basis of which are agents which have no flammable limits in air or oxygen at room temperature.

We are a rather conservative department of anesthesiology in that we are critical in accepting new agents or techniques unless they have been thoroughly investigated in our own laboratories. Although newness does not always bring advance, the new anesthetic agents and techniques that are being developed are producing better anesthesia. Anesthesia personnel today are providing safer anesthesia for the patient and better operating conditions for the surgeon. They aid materially in decreasing the incidence of postoperative complications that were heretofore associated with the anesthetic administration. Because of the importance of the anesthesiologist as a member of the clinical team for surgery,

he must be chosen with the same care that is exercised in selecting the other consultants who play a role in the safe conduct of patients during their hospitalization and treatment.

RESIDENCY TRAINING

DR. VALENTINO D. B. MAZZIA in charge

The number of residents in training is being increased from 6 to 7 at the first year level, and from 6 to 7 at the second year level. With the increase in staff, it is anticipated that the department will be better able to discharge those service responsibilities which it has outside the operating room. In particular, this increase in staff will enable us to provide additional services, which include 24 hour a day 7 day a week obstetrical coverage by an anesthesiologist, constant availability for infant resuscitation, improved service for therapeutic and diagnostic nerve blocking, and a resident anesthesiologist specifically assigned to the recovery room for emergencies. Our gradually increasing resident staff will be available for consultations to medical, pediatric, and surgical pavilions as well as to the emergency room to assist in cardiac resuscitation and drug poisonings.

The application of electronic devices in monitoring and managing the anesthetized patient increases day by day. Instruction and training in the use of the presently available devices is provided in the first year of residency, so that by the second year, the resident will have achieved proficiency. The equipment presently in use includes electrocardioscopes, electroencephaloscopes, intravascular pressure gauges, carbon dioxide and oxygen tension instruments, pH meters, and plethysmographs.

Cardiopulmonary bypass operations using the pump oxygenator are now regularly scheduled. Clinical experience in the anesthetic management of these patients is provided in the second year of training. A second year resident is assigned to each of these cases along with an attending anesthesiologist.

At the present time, residency training in anesthesiology covers a two-year period which follows the completion of an approved internship of at least one year's duration. Following the period of residency, an individual practices for three years, whereupon he qualifies for the examination that completes the requirements of the American Board of Anesthesiology for certification as a specialist in this field. It has been obvious to many of us for a considerable period of time that a two-year period of training for this specialty is insufficient to provide a physician with a well-rounded background in all the phases of anesthesiology.

Certainly, those individuals who are to be our future teachers and researchers in anesthesiology need a longer period of training. To meet this need, the American Board of Anesthesiologists will soon increase the period of residency training in anesthesiology from two to three years. I am wholly in accord with

this change. Therefore, we are now making preparations to provide a third year of training in anesthesiology. Each director of an anesthesia residency program will have wide latitude as to what should be included in the third year of training. This must not be just an additional year of clinical anesthesia experience; in fact, it should not be clinical anesthesia experience, but it should be time spent either in a research laboratory or in other clinical disciplines which play a role in the practice of anesthesiology. For example, experience in the department of electrocardiography or the department of cardiopulmonary studies, or the department of neurology, or the department of chest diseases are but a few of the types of training that should be provided the anesthesiologist. This increase in the duration of residency training can only improve the individual who completes a program of this type and raise the status of anesthesiology in the world.

The three-year program will eliminate those individuals who enter the study of anesthesiology because of the short duration of the residency training program. Some have argued that we are in dire need of individuals to do clinical anesthesia today, as the demand for the clinical anesthesiologist has increased far greater than the number of trained anesthesiologists available. This may very well be true, and for a brief period of time there may be a small decrease in the number of clinical anesthesiologists that enter the specialty or who are eventually trained in anesthesiology. In the long run, however, the individuals will be indeed better trained, and the numbers trained will greatly exceed the numbers trained today. I do hope that by our next annual report we will be able to outline for you the third-year program which we are now preparing.

MEDICAL STUDENT TRAINING

The 1959 report indicated that we were actively engaged in an experiment in clinical teaching during the seven hours devoted to anesthesiology in the third year. I had hoped to be able to report to you this year on the effectiveness of this type of teaching, but I do not believe that the accumulated data are adequate to permit a final evaluation. Another year of data is necessary before we can determine whether our experiment in clinical teaching has indeed encouraged self-education and whether it has fostered scholarship. The students are enthusiastic about the seminar type of teaching rather than the didactic type of lecture, and are cooperating fully in our experiment.

INSTRUMENTATION AND RESEARCH FUNCTION

DR. ALAN VAN POZNAK in charge

The department has continued to provide measurement of various physiological functions during open heart, vascular, and certain neurosurgical procedures. These measurements include electrocardiogram, electroencephalogram, intra-

arterial pressure, central venous pressure, intracardiac pressures, and blood oxygen saturation.

An Astrup semi-micro apparatus has been installed and calibrated, and will facilitate the determinations of blood pH, CO_2, bicarbonate, and buffer base during the course of anesthesia.

Dr. Anthony Puleo has begun work on the Collier rebreathing technique of estimating mixed venous pCO_2 using the Beckman infra-red rapid CO_2 analyzer. These values from expired gas will be compared with blood levels of CO_2 and pH using the Astrup method.

Gratifying progress has been made with the new non-flammable anesthetic agents. Over 500 cases have been done using methoxyflurane, distributed by the Abbott Laboratories as Penthrane^R, CH_3-O-CF_2CHCl_2. Its usefulness has been established as a non-flammable agent pharmacologically similar in many ways to diethyl either. General clinical trial of Penthrane is now in progress in many institutions. The usefulness of Penthrane in neurosurgical operations has been extended by the incorporation of a respiratory assistor and controller unit into an anesthesia machine. In this way, less anesthetic agent is used and more effective pulmonary ventilation is accomplished. Earlier recovery from anesthesia is facilitated, and optimum conditions for the neurosurgeon may be provided by a decrease in brain volume following more effective removal of carbon dioxide.

In addition to methoxyflurane, two other non-flammable anesthetics have been found to be safe, reliable, and effective during long-term laboratory investigation, and are currently undergoing limited clinical trial. The first of these, 1,1,1, 2-tetrafluoro-2-bromoethane, DA-708, is a base stable non-flammable gas which can be used clinically in a manner similar to cyclopropane. Approximately 40 operations have been done using this anesthetic as the primary agent. The second is 1,1,2-trifluoro-2-bromoethyl methyl ether, DA-893, and is a non-flammable liquid with pharmacological properties much like those of Penthrane. However, it is more easily vaporized. Induction and emergence from anesthesia are more rapid than with Penthrane. It can be used in much the same way as diethyl ether. At present, supplies of DA-708 and DA-893 are extremely limited because of problems in synthesis. When greater quantities of these agents are available, extensive clinical trial will be carried out.

During the screening of the halogenated agents in 1957, interest was directed toward the classical problem of mechanisms underlying the general biologic phenomenon of narcosis. The specific molecular effect exerted by chemically unreactive anesthetic molecules remains unknown. Nontheless, it was hoped to duplicate by some non-drug means the specific alterations in nervous system function which had most commonly been accomplished with drugs. The report of the Department of Anesthesiology for 1958 stated: "we hope to produce satisfactory operating conditions by direct introduction of some sort of physical energy, rather than by drugs which must be excreted or detoxified."

A review of the work already done in this field indicated that electronarcosis had been frequently attempted, but satisfactory physiologic surgical anesthesia had not been obtained. Apparatus was assembled for screening of various combinations of frequencies, wave forms, and polarities, and several partially satisfactory types of current have been produced.

Because of the problems such as electrical resistance and thermal burns attendant upon the introduction of electrical energy through intact skin, other sources of physical energy have been considered as potential anesthetics. Magnetism and electromagnetic radiation have been occasionally examined for biologic effect, but various polarities and frequencies have not been methodically screened. Since nerve cells are charged conductors, they will be in some measure influenced by an applied magnetic field. If any appropriate field can be applied, it may be possible to influence neural activity in a way that would resemble the effects produced by aneshetic agents.

Other forces in the electromagnetic spectrum might also be considered. At present, however, electrical and electro-magnetic forces appear to be the most promising for the production of satisfactory clinical anesthesia.

When the new research building is completed, we hope that sufficient space and personnel can be provided for the appropriate investigation of these topics.

RECORDS AND STATISTICS

DR. ROBERT I. SCHRIER in charge

A comparative study of the total primary anesthetics for 1959 and 1960 (Chart I) shows no numerical change for the two years. This is of some interest, since in prior years we have shown increases of up to 500 cases yearly. This can be accounted for partially, if not completely, by the fact that this past year sections of the GOR and GYN operating rooms had been closed for alterations and repairs.

Approximately one-third (Chart II) of our inhalation anesthetics were administered with the use of endotracheal catheters (either oral or nasal). This compares evenly with the figures for 1958 and 1959. Similarly, in slightly more than one-third of the inhalation anesthetics administered, muscle relaxants (drugs which prevent depolarization or persistent depolarizers) were employed as part of the technique (Chart II).

In 1960, for the first time we have employed IBM techniques in the analysis of complications. Chart IV (a) is a list of deaths in the operating room or recovery room which were felt to be related to anesthesia. The ages of the patients (in decades) show an increased incidence in the earlier (first decade) age group. Anesthesia induction to arrest indicates the time when cardiac arrest occurred starting from the induction of anesthesia. The term successful resuscitation means that complete return of function was obtained

and that the patents sustained no residual impairment to any system. Cardiac resuscitation implies that though heart function was restored, there was impairment to other vital systems and this accounts for the subsequent death of the patient. Of these ten cases, which represent one per two thousand anesthetics administered in this institution, successful resusciation was obtained in 70% of the cardiac arrests. However, it was possible to achieve cardiac resuscitation in all of the cases.

Charts IV (b and c) respectively, deal with the cardiovascular and pulmonary complications reported during the year. Since it is extremely difficul in many cases to decide on etiology and pathogenesis of these complications, we prefer to list them all even if they may not be related to anesthesia.

1960

Department of Anesthesiology

General Surgery — GYN — Obstetrics

Cyclopropane	7,155	
Ether — closed circle	1,643	
Ether — open	818	
Nitrous Oxide	4,541	
Intravenous Pentothal	74	
Rectal Pentothal	26	
Trilene	7	
Vinethene	23	
Regional block for surgery	56	
Spinal	273	
Caudal	28	
Fluothane	862	
Investigative Drugs	380	15,886
Locals O.R.	3,249	
Blocks O.R. therapeutic and diagnostic	23	
Locals — Clinic	429	
Blocks — Clinic	7	
Adjuvants for electroshock therapy	199	3,907
TOTAL		19,793
Private patients	11,334	
Pavilion patients	8,459	19,793

CHART I—Annual Summary—Primary Anesthetics

Department of Anesthesiology

General Surgery — GYN — Obstetrics

Methods of induction to primary anesthesia		
Intravenous Pentothal induction		9,051
Vinethene induction		467
Rectal Pentothal		136
Induction and maintenance with same anesthetic		
Cyclopropane induction to Cyclopropane maintenance		964
Ether induction to Ether maintenance		378
Nitrous Oxide induction to Nitrous Oxide maintenance		2,957
Technics		
Closed circle — CO_2 absorption technic		8,315
Semi-closed circle — CO_2 absorption technic		6,100
Open method mask		383
Insufflation (Mouth hook, Ayer's T or Slocum tubes)		446
Non-rebreathing valves for children		10
Infant circle — closed CO_2 absorption technic		170
Mechanical Ventilator		99
Special technics		
Arfonad — controlled hypotension		127
Cardiac-pulmonary bypass		46
Generalized hypothermia (tub or blanket)		12
Refrigeration — localized		2
Localized hypothermia (ice packs)		60
Endotracheal intubation		
Nasoendotracheal	161	
Oroendotracheal	4,745	4,906
Neuro-muscular blocking agents		
D'tubocurarine	1,027	
Succinylcholine	3,782	
Both combined	582	5,391

CHART II—Annual Summary—Methods of Induction—Technics Special Drugs

ANESTHESIOLOGY DEPARTMENT

Summary of cases — Includes General, Spinal and Block Anesthesia

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total*
HEAD AND NECK													
ENT (by region)	61	71	78	81	95	73	25	25	48	68	58	57	740
Eye	16	15	37	21	30	40	28	45	26	25	41	41	360
Dental	14	11	7	12	7	12	7	14	15	9	8	1	117
Face	8	7	5	11	4	15	9	14	14	13	11	19	130
Thyroid	10	14	24	14	25	20	12	16	11	17	20	15	198
Neck	22	14	15	12	15	13	9	9	5	9	8	9	140
Head, superficial	1	3	5	3	1	2	0	0	2	0	1	1	19
Intra-cranial	19	24	22	21	18	20	11	17	22	16	21	20	231
Esophagoscopy													
Bronchoscopy	6	3	5	2	3	2	3	3	4	1	5	2	39
Total	157	162	198	177	198	197	104	143	147	158	173	165	1979
THORAX													
Great Vessels	7	3	9	7	7	8	4	0	2	5	3	0	55
Mitral Valvulotomy	10	9	8	7	3	6	4	0	2	6	4	6	65
Cardiac-pulmonary bypass	3	2	3	5	6	6	3	0	5	4	6	3	46
Other heart surgery	3	8	3	7	5	3	0	1	3	2	2	1	38
Intra pleural	19	12	13	16	8	24	14	12	13	19	14	20	184
Extra pleural	0	0	1	0	0	0	0	2	0	1	0	2	6
Thorax, superficial	40	16	32	44	36	35	35	41	51	29	29	31	419
Thoracic cage	0	1	0	3	1	2	1	2	0	1	1	0	12
Shoulder	1	1	3	3	2	2	2	2	0	3	0	1	20
Thoracic sympathectomy	0	0	0	0	0	2	0	0	0	0	0	0	2
Total	83	52	72	92	68	88	63	60	76	70	59	64	847
UPPER ABDOMEN													
Stomach—duodenum	34	36	31	31	30	27	20	23	27	40	24	35	358
Biliary tract	43	41	56	41	39	49	43	59	45	54	47	40	557
Retro-peritoneal	2	2	5	1	5	2	6	3	0	3	0	2	31
Colon	30	19	19	32	24	18	29	24	16	31	26	28	296
Pancreas	1	4	5	2	1	5	1	3	2	3	2	4	33
Spleen	4	4	2	2	3	3	4	2	2	5	2	2	35
Renal	20	21	25	12	11	8	13	11	11	15	17	15	179
Portal	3	3	1	0	3	2	1	0	0	1	0	0	14
Close evisceration	0	2	0	3	2	0	0	0	0	0	0	2	9
Negative exploration	0	0	0	0	0	1	1	0	0	0	0	0	2
Total	137	132	144	124	118	115	118	125	103	152	118	128	1514

	Jan.	*Feb.*	*Mar.*	*Apr.*	*May*	*June*	*July*	*Aug.*	*Sept.*	*Oct.*	*Nov.*	*Dec.*	*Total*
LOWER ABDOMEN													
Appendix	17	17	14	25	23	21	16	18	16	20	15	15	217
Bowel, small	15	8	10	11	8	8	5	4	7	7	8	4	95
Normal OB delivery	324	326	349	382	288	310	330	393	356	363	326	336	4083
GYN abdominal surgery	65	74	71	48	59	62	65	61	44	54	50	38	691
Urology, abdominal	35	40	30	36	34	35	29	30	34	23	27	32	385
Caesarean section	19	12	19	34	24	23	29	26	29	21	27	25	288
Abdominal perineal	10	3	2	4	5	4	4	3	6	3	4	4	52
Abdominal aorta and vessels	6	2	16	3	8	9	6	9	5	6	4	2	76
Ventral hernia	4	3	5	8	3	4	5	5	4	7	8	1	57
Negative exploration	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	496	485	516	551	452	476	489	549	501	504	469	457	5945
ABDOMINAL WALL													
Hernia, ing. fem. umb.	61	49	34	38	44	44	46	50	52	52	33	44	547
Lumbar sympathectomy	3	7	6	5	1	2	3	1	3	1	4	2	38
Abdomen, superficial	13	6	4	7	7	2	6	4	3	3	1	7	63
Burns 10% body	1	0	0	0	0	0	0	1	0	0	1	0	3
Total	78	62	44	50	52	48	55	56	58	56	39	53	651
PERINEAL													
Perineal GU (TUR & Cysto)	110	100	103	93	98	78	89	95	103	117	114	98	1198
Ano-rectal	16	27	26	31	21	15	17	29	22	20	17	23	264
Perineal GYN (D&C etc.)	184	194	226	183	208	206	180	174	166	195	193	188	2297
Vaginal hysterectomy	13	10	17	12	17	14	13	13	9	16	16	8	158
Total	323	331	372	319	344	313	299	311	300	348	340	317	3917
SPINE													
Column	7	9	7	8	9	11	5	9	7	4	6	5	87
Cord	2	2	8	3	5	4	1	1	0	3	2	0	31
Back, pilonidal, etc.	5	6	6	2	2	4	11	10	14	6	7	3	76
Total	14	17	21	13	16	19	17	20	21	13	15	8	194
LIMBS													
Upper bone	8	6	9	4	4	3	5	5	6	2	3	7	62
Upper soft	15	13	13	26	23	13	9	11	15	13	12	11	174
Lower bone	20	27	40	32	26	34	15	18	33	20	27	38	330
Lower soft	17	25	24	20	24	26	22	29	16	19	21	20	263
Total	60	71	86	82	77	76	51	63	70	54	63	76	829
Grand total Operations	1348	1312	1453	1408	1325	1332	1196	1327	1276	1355	1276	1268	15,876
Grand total Anesthesias	1349	1314	1454	1409	1328	1334	1196	1327	1276	1355	1276	1268	15,886
Anesthesia—No Operation	1	2	1	1	3	2	0	0	0	0	0	0	10

CHART III

ANESTHESIOLOGY CLASSIFICATION OF COMPLICATIONS

Age in Decades	*Physical Status*	*Agent*	*Technic*	*Relaxant*	*Diagnosis-Operation*	*Anes. Ind. to Arrest*	*Complication*	*Result*
1st	2	Ether	Infant-Circle Endo.	Curare	Thrombocytopenic purpura Splenectomy	2 hours	Cardiac Arrest O. R.	Cardiac Resus. Death 2 days
1st	6	Cyclo	Infant-Circle Endo.	Anectine	Trans. Great Vessels Aortico-pulmonary anastamosis	Induction	Relative Anes. overdose hypoxia O. R.	Success Resus. No sequelae
1st	5	Cyclo	Infant-Circle Endo.	None	Acute appendicitis Appendectomy	1 hour	Laryngospasm with asphyxia O. R.	Success Resus. No sequelae
1st	1	Ether	Insuffl. Endo.	Anectine	Chronic tonsillitis T & A	2 hours	Anes. overdose O. R.	Success Resus. No sequelae
3rd	1	Fluothane	S.Closed Endo.	Anectine	Tonsillitis T & A	Induction	Vent. Fib. O. R. (Closed & open chest massage)	Success Resus. No sequelae
3rd	3	Ether	S.Closed	Anectine	Ganglioneuroma Torkildson Shunt	Induction	Relative Anes. overdose O. R.	Success Resus. No sequelae
5th	2	Penthrane	Closed Endo.	Anectine	Severe Diabetes Hypophysectomy	2 hours	Respiratory obstruction O. R.	Cardiac Resus. Death 2 days
6th	1	Fluothane	S.Closed Endo.	Anectine	Carcinoma Buttock Exc. Ca. Buttock	30 min.	Cardiac Arrest O. R.	Cardiac Resus. Death 5 days
7th	2	Ether	S.Closed Endo.	Anectine	Arterioscl. Aorta Lumbar Sympathectomy	2 hr. 30 min.	Cardiac Arrest O. R.	Success Resus. No sequelae
8th	3	Fluothane	S.Closed Endo.	Anectine	Cholangitis Cholecystostomy	2 hr. 15 min.	Axphyxia R. R.	Success Resus. No sequelae

CHART IV (a)—Cardiac Arrests with open chest massage

Age in Decades	*Physical Status*	*Agent*	*Technic*	*Relaxant*	*Diagnosis-Operation*	*Anes. Time*	*Complication*	*Result*
2nd	3	Cyclo	Closed Endo	Anectine Curare	Renal Artery Stenosis Exp. rt. renal artery Right Nephrostomy	6 hours	Myocard. Infarct. Operative day	Improved
6th	2	Ether	S.closed Endo	Anectine	Carcinoma Kidney Bilat. Nephrostomies	2 hours	Acute Pul. edema Congestive heart failure in O. R.	Improved
6th	3	Ether	S.closed Endo	Anectine	Carcinoma Thyroid Excision right lobe Thyroid	4 hours	Pulmonary edema OR L. Hemi-paresis 8 hrs. post op.	Improved
6th	3	Nitrous	S.closed	None	BPH - TURP	2 hours	Myocard. Infarct. Recovery Room	Improved
6th	2	Ether	S.closed Endo	Anectine	Duodenal Ulcer Partial Gastrectomy	3 hours	Myocard. Infarct. 1st post op. day	Improved
6th	2	Ether	S.closed Endo	Anectine	Carcinoma Sigmoid Resection Sigmoid	2 hours	Myocard. Infarct. Recovery Room	Improved
6th	1	Ether	S.closed Endo	Anectine	Carcinoma Prostate Rad. perineal Prost.	4 hours	Myocard. Infarct. 1st. post op. day	Improved
7th	2	Cyclo Cyclo	Closed Endo	None None	Hernia (2wks.apart) 1. L.ing. hernoplosty 2. R. ing.hernioplasty	1 hour 1 hour	Myocard. Infarct. immediately after end of operation	Improved
7th	3	Fluothane Nitrous	S.closed Endo	Anectine Anectine	Carcinoma Sigmoid 1. Exp. Lap. Colostomy 2. Ant. Resect. Sigmoid (6 days apart)	2 hours	1. Sev. hypoten. Serpasil O.R. 2. Myocard. Infarction 1 day after 2nd op.	Improved
8th	2	Ether	S.closed Endo	Anectine Curare	Carcinoma Sigmoid Resection Sigmoid Colon	6 hours	Acute Myocard. Infarction fifth post op. day	Improved
8th	3	Cyclo	Closed Endo	Anectine Curare	Aortic Aneurysm Res. aortic aneurysm	6 hours	Myocard. Infarct. 3rd post op. day	Improved

Chart IV (b)—Cardio Vascular Complications

Continued from Page 16

Age in Decades	*Physical Status*	*Agent*	*Technic*	*Relaxant*	*Diagnosis-Operation*	*Anes. Time*	*Complication*	*Result*
8th	3	Ether	S.closed Endo	Anectine	BPH - TURP	2 hours	Myocard. Infarct. and comp. heart block 1st po. day	Improved
8th	2	Cyclo	Closed Endo	Curare	Papilloma Colon Exc. Papilloma Colon	2 hours	Myocard. Infarct. 2nd post op. day	Improved
8th	3	Ether	S.closed Endo	None	Fractured Hip Jewett Mailing Hip	4 hours	Myocard. Infarct. operative day	Improved
9th	3	Nitrous	S.closed	Anectine	BPH with Urinary Retention Suprapubic Cystotomy	2 hours	CVA fifth post operative day	Improved

Chart IV (b) — Cardio Vascular Complications continued

1st	2	Cyclo	Closed Endo	Anectine	Cardio Spasm Heller cardiomyotomy	2 hours	Pneumonia LLL 2nd post op. day	Improved
1st	1	Ether	Infant-Circle	None	Hydronephrosis Ureteroneocystostomy Left	4 hours	Atelectasis RUL 1st post op. day	Improved
1st	4	Nitrous	Infant-Circle Endo	Anectine	Patent Ductus Arter. Retrograde aortogram	1 hour	Intubation right bronchus, shock R.atelectasis	Death
3rd	1	Cyclo	Closed Endo	Anectine Curare	Duodenal Ulcer Patial Gastrectomy Gastroduodenostomy	2 hours	P.O. aspiration stomach blood-broncho-pneumonia 1st post op. day	Improved
4th	2	Cyclo	Closed Endo	Anectine	Carcinoma Lung Lobestomy RL lung	4 hours	L. lobar pneumonia 1st post op. day	Improved
5th	3	Ether	S.closed Endo	None	Mitral Stenosis Mitral Valvulotomy	2 hours	Atelectasis LLL 2nd post op. day	Improved
5th	1	Cyclo	Closed Endo	Anectine Curare	Cholecystitis Cholecystectomy	2 hours	Pneumonia RLL 2nd post op. day	Improved

Chart IV (c) Pulmonary Complications

5th	5	Ether	S.closed Endo	Anectine	Appendicitis Appendectomy	2 hours	Trauma larynx from intubation Tracheotomy 1st post op. day	Improved
6th	1	Ether	S.closed Endo	Anectine Curare	Polyps of Colon Excision of Polyps	4 hours	Pneumonia RLL 2nd post op. day	Improved
6th	1	Penthrane	S.closed	None	Hernia R. ing. hernioplasty	1 hour	Pneumonia LLL 1st post op. day	Improved
6th	3	Ether	S.closed Endo	Anectine Curare	Ulcer Leg Split graft leg ulcer	2 hours	Pulmon. edema OR Myocard. Infarct. on Operative day	Improved
7th	2	Ether	S.closed Endo	Curare	Choledocholithiasis Choledocholithotomy	2 hours	Broncho- pneumonia 2nd post op. day	Improved
7th	2	Ether	S.closed	Anectine	Varicose Veins Phlebectomy	2 hours	Perforat. Esoph. Tracheal intubat. Mediastinal Emphysema	Improved
8th	3	Ether	S.closed Endo	Curare	Renal Cyst Exc. Renal Cyst	2 hours	Massive right Atelectasis 2nd post op. day	Improved

Chart IV (c) Pulmonary Complications continued

CLOSING COMMENTS

In the closing pages of this report, I should like to summarize the advances made within the Department of Anesthesiology during the last three years.

First of all, it has increased in personnel, the great increase being in the number of physician anthesiologists giving and administering anesthesia. The anesthetic equipment, the anesthetic techniques, and the anesthetic agents used within our institution are of the most modern and up-to-date types, so that there is no doubt that the quality as well as the quantity of our clinical service throughout all departments has indeed advanced.

At the end of the 1959 Annual Report, I spoke about our experiment in clinical teaching. Now you know that one experiment in clinical teaching will result in a book for medical students, written by Dr. Mazzia and me. We have great hopes that it will become a standard text in the medical schools of our country. 1960 saw the introduction of the era of the non-flammable anesthetic agent. I can report that this department indeed has been in the vanguard in making the era of non-flammable anesthetics almost a reality. It is through the efforts of this department that much of the significant work in non-flammable, non-explosive anesthetics has been done in this country; and this work is culminating in new and useful anesthetic agents.

We, as a department, are not sitting still following what we believe is a significant advance in structure-function relationships in anesthesia, but are again moving to the fore as part of the vanguard that is attempting to develop physical methods of producing the anesthetic state that might supplant the pharmacological tools which we use today. There is no doubt in our minds that in the decade of the sixties, we will control a physical force, producing reversible degrees of unawareness of environmental stimuli during periods under which individuals may undergo surgical operations. We have joined in that effort, and I can assure you that this department will continue to lead in the search for means that will eventually produce a more satisfactory method of rendering pain relief, not only to the surgical patients, but to those of all departments.

In the 1959 report we spoke with anticipation about the coming library of the department; now that this is a reality it has lived up to all its expectations. All my hopes of what a library would do for our department are being accomplished.

1961 will be the year in which an all-out effort will be made to get adequate research facilities for the Department of Anesthesiology. For a department to assume a modicum of greatness, its research laboratory must be its vital center. It is true that some of the great research in medicine has been done with a simple pencil and paper. Yet modern research requires much apparatus in order to obtain objective data. This type of a research laboratory

requires floor space. It requires a large amount of laboratory equipment. This will be our goal. I hope that I shall be able to report to you in next year's report that his department has reached this goal in research as it has in clinical anesthesia and in teaching.

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